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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,673	10/01/2003	Ronald A. Askeland	10006481-4	8222

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

NGUYEN, LAM S

ART UNIT	PAPER NUMBER
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2853

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/676,673

Applicant(s)

ASKELAND ET AL.

Examiner

LAM S. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 19 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 19, even though depends on claim 15, fails to further limit the subject matter of claim 15 because claim 15 has included all claimed limitations cited in claim 19.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1, 3, 7-8, 15-16, 18-19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5/1 of U.S. Patent No. 6648440 in view of claim 2 of U.S. Patent No. 6648440 and Hackleman (US 5742305).

Claim 5/1 of U.S. Patent No. 6648440 teaches a method (or apparatus) for producing accurate ink drop placement produced by a printhead having plural nozzles, the method comprising:

using a heater array, with heater elements (*claim 1, line 2*);

intentionally offsetting a predefined number of the nozzles (*claim 1, lines 10-11*) to allow reduction of a data rate, amount of ink drops and firing frequency in a single print swath (*claim 5*);

analyzing print data to determine a firing pulse rate of the heater elements in the heater array for controlling ejection of the ink from the plural nozzles to maintain accuracy and precision of ink droplet placement (*claim 1, lines 7-9 and lines 13-15*); and

limiting the number of nozzles that fire at a given time while simultaneously and selectively decreasing a data rate of firing of each nozzle at the given time (*claim 1, lines 12-15*) (**Referring to claims 1, 15**),

wherein a predefined number of nozzles are offset to allow reduction of the data rate, amount of ink drops and firing frequency in a single print swath (*claim 5*) (**Referring to claims 8, 19**).

- Claim 5/1 of U.S. Patent No. 6648440, however, does not teach assigning pixel locations of the ink drops and then registering the pixel locations at respective firing addresses.

Claim 2 of U.S. Patent No. 6648440 teaches assigning pixel locations of the ink drops and then registering the pixel locations at respective firing addresses (*claim 2*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the process disclosed in Claim 5/1 of U.S. Patent No. 6648440 to

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include assigning and registering pixel locations as disclosed by Claim 2 of U.S. Patent No. 6648440. The motivation for doing so would have been to be able to fire ink drops at assigned and register pixel locations as taught by claim 2 of U.S. Patent No. 6648440.

- Claim 5/1 of U.S. Patent No. 6648440 also does not teach providing a supply of ink to the printhead for providing ink drops and wherein the heater elements are coupled to the nozzle members, which are selected to be fired (**Referring to claims 3, 16**), wherein a portion of the nozzles of the nozzle member comprising heater elements for heating the ink is aligned horizontally with dot column correction (**Referring to claims 7, 18**).

Hackleman discloses an ink jet printing apparatus including a printhead assembly (*FIG. 1, element 53*) and an ink supply (*column 6, lines 24-33*) coupled to the printhead assembly for providing ink drops, wherein the printhead assembly comprising nozzle members (*FIG. 3, element 44*) coupled to heating elements (*FIG. 3, element 50*) to be fired selectively, and wherein a portion of nozzles of a nozzle member including heater elements for heating the ink (*FIG. 5, element 86*), wherein the portion is aligned horizontally with dot column correction (*column 2, line 34-40*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to include an ink supply in the printing apparatus disclosed by Claim 5/1 of U.S. Patent No. 6648440 and being coupled to the printhead assembly as disclosed by Hackleman. The motivation for doing so would have been to provide ink to the print head assembly for providing ink drops for printing purpose as taught by Hackeman (*FIG. 1-3*).

2. Claims 2, 4-5, 6, 9, 17, 20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5/1 of U.S. Patent No. 6648440 in view of

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claim 2 of U.S. Patent No. 6648440 and Hackleman (US 5742305), as applied to claims 1 and 15, and further in view of Kawase et al. (U.S. 6086272).

Claim 5/1 of U.S. Patent No. 6648440, as modified, discloses the claimed invention as discussed above except wherein data rate, memory, power, and ink supply are decreased **(Referring to claims 2, 4-5, 17)**, wherein the controller determines a firing order of the nozzles in at least one of a single or multiple swaths **(Referring to claim 6)**, wherein the controller determines a firing order of the nozzles to produce an ordered pattern that reduces banding on a print media **(Referring to claims 9, 20)**.

Kawase et al. discloses a printer comprising a plurality of nozzles and a controller for determines a firing order of the nozzles in at least one of a single or multiple swaths (*FIG. 2: the corresponding controller determines either the even-numbered nozzles or odd-numbered nozzles to be fired*), and wherein the firing order of the nozzles to produce an ordered pattern that reduces banding on a print media (*Abstract: Nozzles are positioned in a zigzag formation and either even or odd numbered nozzles fired (firing order) at a given time, therefore, the banding effect is reduced*), wherein also data rate, memory, power, and ink supply are decreased (*Since a half number of all nozzles are fired at a time, the memory for storing the corresponding print data of used corresponding heaters, the power needed for firing corresponding heaters, and ink supply for corresponding heaters are decreased by a factor of 2 comparing to the ones in a single pass/swath mode*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the controller in the printing apparatus disclosed by Claim 5/1 of U.S. Patent No. 6648440 to determine a firing order of the nozzles in a single or multiple swaths

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to reduce banding on a print media as disclosed by Kawase et al. The motivation for doing so would have been to provide high-resolution printing without using buffer circuits or complicated switching control as taught by Kawase (*column 2, lines 15-20*).

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Lam Son Nguyen', with a stylized, cursive script.

LAM SON NGUYEN